

ZOROTYPUS SWEZEYI, A NEW SPECIES OF THE ORDER ZORAPTERA FROM HAWAII

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The species of *Zorotypus* herein described is based on specimens received from Hawaii by Mr. Hebard, of Philadelphia, who kindly submitted them to the writer for determination. Considering the paucity of indigenous forms of Hawaiian insects, it seems doubtful if this is a native species. It was naturally surmised that this would prove to be an introduced species and probably a described form, more likely one of the East Indian species erected by Silvestri. It is still very probable that this may indeed be an introduction into Hawaii, but a careful comparison with descriptions and figures of the known forms of the genus shows it to differ from them all. It is thus herein described as new, and the specific name *swezeyi* proposed for it in honor of the collector of the specimens; this name is also suggestive of the supposed habitat, Mr. Swezey having been so intimately associated for many years with Hawaiian Entomology.

The subequal second and third segments of the antenna will at once differentiate this new species from the Old World forms and from the Nearctic species *snyderi*, while the more strongly armed ventral margin of the posterior femora will readily separate it from *hubbardi*. No specimens of *Z. neotropicus* are available for comparison, but these Hawaiian specimens do not appear to agree with the description of that species sufficiently well to warrant considering them as belonging there. The ventral armature of the posterior femora of *neotropicus* is apparently less robust than in the species here described and the antennae are also somewhat different. Direct comparison of specimens of both species would probably show various features of morphological dissimilarity.

Description.—(Unchitinized adult female): General color, shape and appearance very like that of *Z. hubbardi*.¹ The hirsute covering of the entire

¹ Proc. Ent. Soc. Wash., xxii, pl. vi, fig. 4, (1920).

body seems slightly more sparse than in *hubbardi*, the front in some specimens showing one or two irregular blackish subcutaneous spots, perhaps vestiges of degenerate eyes which are no longer present, though the spaces the eyes would occupy if developed are generally of a slightly different appearance, when carefully examined, from the rest of the surface of the head, due apparently to a slightly less degree of transparency at those points. Mouth parts not noticeably differing from those of *hubbardi* as described in the original diagnosis of that species. Antennae consisting of nine segments and essentially as those of *hubbardi*.

Pronotum about as in *hubbardi* but more narrowed posteriorly, due probably to shrinkage in drying. Meso- and metathorax usually decidedly shorter than the pronotum but shrinkage in drying varies proportionate measurements very decidedly, and fresh material or individuals preserved in spirits would very likely show these segments to be about as in the illustration of *hubbardi* mentioned above.

Abdomen apparently broader and more broadly rounded posteriorly than in *hubbardi* and, in all specimens examined, the tip has the terminal one or two segments turned inwards, but here again shrinkage may be the cause. The cerci are like those of *hubbardi* but are more or less concealed by the turning in of the apical segments of the abdomen as noted above; the terminal bristle is considerably longer than the cercus itself. Along the sides of the thorax and abdomen are some thicker and more bristly hairs than are most of those with which the entire insect is more or less sparsely covered.

Legs in general similar to those of *hubbardi* but differing decidedly in the ventral armature of the posterior femora; tibiae bearing short hairs, generally shorter than the tibial depth, some of the ventral ones, especially on the posterior tibiae, somewhat thickened and spur-like, but very small; anterior and intermediate femora not noticeably armed beneath except with some slightly thickened hairs; posterior femora armed beneath with eight or nine moderately stout chitinated spines, the apical one situated very near the apex of the femora and the others at more or less subequal intervals, the basal one or two generally somewhat longer and stouter than the others, and sometimes separated from each other and from the others by spaces a little greater than that between the more apical spines; the basal of these spines is situated some distance from the base of the femora, usually a distance about equal to the length of that spine; there seems to be much variation in this ventral armature of the posterior femora, as in some specimens the spines are more uniform in length than in others, or more equally spaced.

Measurements.—The total length is clearly somewhat greater than in *hubbardi*, but the only specimens seen are dried and evidently much shrunken. Certain measurements of the type specimen are as follows: length, antennae, 1.75 mm.; pronotum, .4 mm.; posterior tibia, .9 mm.; posterior femora, .85 mm.; width, pronotum anteriorly, .6 mm., posteriorly, .3 mm.

The great inequality of the pronotal width as shown by the above measurements is very surely due mostly to shrinkage and would not be so striking

in fresh material, though the pronotum is very likely proportionately broader than in *hubbardi*.

Holotype, female, Kokee, Kauai, Hawaii, August 19, 1921, collected by Swezey in decayed log. Paratypes *a*, *b*, *c* and *d*, females, same data as type except the last, which was collected on August 21.

Holotype and paratype *a* in collection United States National Museum; paratypes *b*, *c*, and *d* in collections of Bernice Pauahi Bishop Museum and Academy of Natural Sciences of Philadelphia. Catalogue No. 25416, U. S. N. M.

Mr. Swezey writes that the region where this insect occurs is a forested plateau, at an elevation of 3500 feet. It was found quite common in decayed logs.

The following key, based on that given by Silvestri,² may be found useful in distinguishing the seven species of *Zorotypus* now known:

Key to the Species of the Genus Zorotypus

1. Second and third segments of the antennae noticeably unequal in length.2
Second and third segments of the antenna of about the same length.5
2. Second segment of the antenna longer than the third. . **guineensis** Silvestri
Second segment of the antenna shorter than the third.3
3. Second segment of the antenna no more than one-half as long as the third.4
Second segment of the antenna more than one-half as long as the third.
ceylonicus Silvestri
4. Cerei with some lateral setae fully twice as long as the cercus; habitat,
Java. **javanicus** Silvestri
Cerei with lateral setae noticeably less than twice as long as the cercus;
habitat, North America. **snyderi** Caudell
5. Posterior femora armed beneath with but two stout chitinized spines;
habitat, United States. **hubbardi** Caudell
Posterior femora armed beneath with six or more chitinized spines; habi-
tat, Central America or Hawaii.6
6. Spines on ventral margin of posterior femora rather robust; habitat,
Hawaii (introduced?). **swezeyi** Caudell
Spines on ventral margin of posterior femora scarcely robust; habitat,
Costa Rica. **neotropicus** Silvestri

² Boll. Lab. Zool. Portici, VII, p. 205, (1913).